Clean Air Interstate Rule
NOx Allocation Structures

Clean Air Act Task Force Meeting
June 5, 2006

Presentation Outline

1. Basic allocation structures
2. Allocation calculations
   - Unit baseline
   - State baseline
   - Updating unit and state baselines
   - Fuel weighting
3. Set-asides
4. Combined Heat and Power Units
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Basic Allocation Structures

Allocation Structures

- **Federal Implementation Plan (FIP)**: Follows the CAIR Model Rule except USEPA implements and runs all aspects of the trading program
- **WDNR's "Option 1"**: Presented at public information meetings. Uses Model Rule as framework with some modifications to NOx allocation structure.
- **WUA's "Option 3"**: Received proposal in response to public information meetings. For the most part, mirrors the FIP.
- **Proposed Draft Rule**: Incorporates WDNR's responses to comments received on options presented at the public information meetings. Uses abbreviated SIP option.

Comparison of Allocation Structures

	Federal Implementation Plan	Wisconsin's Preliminary Proposal "Option 1"	Utilities Association "Option 3"	Proposed Draft Rule
Allocation basis- existing units	Heat input	Electrical output	Heat input	Electrical output
Allocation basis- new units	Electrical output	Electrical output	Electrical output	Electrical output
Data used for baseline	Highest three years of five years of data	Average of three years of data	Highest three years of five years of data	Highest three years of five years of data
Updating unit baseline	Permanent, once established	Updated every three years	No proposal at this time	2011 and every five years thereafter
Updating state total baseline	2011 and every year thereafter	Updated every three years	Updated every three years	2011 and every year thereafter
Level of allocation	Unit level	Unit level	Unit level	Unit level
Reallocation	2011 and every year thereafter	Every three years	Every five years	2011 and every year thereafter
Length of allocation	Initial 2009-2014 allowances allocated, then four years in advance of vintage yr starting in 2011	Three years	Five years	Initial 2009-2014 allowances allocated, then four years in advance of vintage yr starting in 2011
Fuel weighting	1.0 for Coal 0.6 for Oil 0.4 for all others	No fuel weighting	1.0 for Coal 0.6 for Oil 0.4 for all others	No fuel weighting
New unit set-aside	Phase I: 5% Phase II: 3%	Phase I: 5% Phase II: 3%	Phase I: 5% Phase II: 5%	Phase I: 7% * Phase II: 7% *
RE/EE source set-aside	No RE/EE set-aside	Phase I: 3% Phase II: 5%	No RE/EE set-aside	No separate RE/EE set-aside
Treatment of Clean Coal Projects	No preference	Preference in new unit set-aside allocation	No preference	No preference
Oversubscription to set-aside	Pro-rata reduction	Preference in new unit set-aside for clean coal; Pro-rata reduction	Pro-rata reduction	Pro-rata reduction
Underscription to set-aside	Re-distribution to the main allocation pool	Banked for future use in the set-aside	Re-distributed to the main allocation pool	Re-distribution to the main allocation pool
Treatment of CHP	Boiler units: Total Thermal Output/ 0.8 Combustion Turbines: (Total thermal output/0.8) + (Electrical generation * 3,413 btu/KWh	All units: Generation Output + (Thermal output/ 3.4 mmBtu/MWh)	Boiler units: Total Thermal Output/ 0.8 Combustion Turbines: (Total thermal output/0.8) + (Electrical generation * 3,413 btu/KWh	All units: Generation Output + (Thermal output/ 3.4 mmBtu/MWh)
Compliance Supplement Pool	Allocated based upon early reductions or extreme hardship	Retired from use	Allocated based upon early reductions or extreme hardship	Retired from use

* Under the proposed draft rule, new renewable projects would be allowed to apply to the new unit set-aside for allowances. Under the Utilities Association's Option 3, only new fossil fueled fired units would be eligible for the new unit set-aside. An energy efficiency project set-aside has been eliminated from the draft rule. Energy efficiency and the resulting emission reductions is covered by an updated baseline based on electrical output.

Allocation Calculations

Basic Allocation Calculation

Unit's allocation =

(Unit Baseline/State Total Baseline) * MAP

Where:

State Total Baseline = Sum across State of all units' baselines

Main Allocation Pool (MAP) = (State Budget) – (Set-aside)

Data Used for Calculating Unit Baseline

- Data Series Used:
  - Average of 3 highest years of operating data over 5 year period or
  - Average of 3 years of operating data
- Years of data used impacts length of time a new unit draws from the new unit set-aside

Basis for Unit Baseline Calculation

- **Existing unit** – Commenced operation before 1/1/2001
- **New unit** – Commenced operation on or after 1/1/2001
- Existing unit basis – Heat Input or Gross Generation
- New unit basis – Gross Generation
- Why gross generation for both existing and new units?
  - Treats units the same regardless of when the unit commenced operation
  - Ties the emissions directly to the economic good being produced – electricity
  - Reduces distortion in the market
  - Encourages and rewards efficiency

Updating of State and Unit Baseline

- **State baseline**
  - Under FIP and proposed draft rule, updated to include new units that have established a baseline
  - Update occurs first in 2011 and every year thereafter
- **Unit baseline**
  - Under FIP and Option 3, unit baseline is permanent once established
  - Under proposed draft rule, unit baseline is first updated in 2011 and every 5 years thereafter

Why Update Unit Baseline?

- Encourages and rewards efficiency
- Responds to changing energy market conditions
  - Shifts in fuel pricing
  - Availability of fuel
  - Transmission system constraints
- Allocates to units that are currently generating electricity

Fuel Weighting

- Adjusts the allocation based upon the type of primary fuel used by the unit
- Allocates more allowances to units that inherently have higher emissions rates and therefore greater compliance burdens
- FIP and Option 3 use fuel weighting
  - 1.0 Coal
  - 0.6 Oil
  - 0.4 All other fuel
- Proposed draft rule does not use fuel weighting

Why Eliminate Fuel Weighting?

- Allows the market to better approximate the least cost emission reductions
- Levels playing field between generators regardless of type of fuel being used
- Removes bias towards units that burn coal

Set-Asides

New Unit Set-Aside

- Available to new units prior to establishment of unit baseline
- Based on unit's previous year NOx emissions
- Proposed Draft Rule

	Percentage	Annual	Seasonal
Phase I (2009-2014)	7%	2,853	1,259
Phase II (2015+)	7%	2,378	1,049

- Size of set-aside based on Pubic Service Commission's estimate of new generation (Wisconsin's Strategic Energy Assessment, Energy 2010)

Set-Asides: Renewable and Energy Efficiency Projects – Proposed Draft Rule

- **Renewables projects**
  - New renewable units eligible to apply to the new unit set-aside
  - After baseline has been established, new renewable units are eligible for allowances from main allocation pool
- **Energy efficiency projects**
  - Not eligible for allowances through set-asides or main allocation pool
  - Energy efficiency addressed through efficiency based allocation

Oversubcription and Undersubscription of Set-Aside

- Oversubscription
  - Pro rata reduction – reduces allocations applied for based on the percentage of the total set-aside applications pool
- Undersubscription
  - Redistributed to the main allocation pool OR
  - Banked for future use in the set-aside

Combined Heat and Power Units

- Combined heat and power units (CHPs) also known as cogeneration units, generate power and thermal energy from a single fuel source.
- Under all rule structures, CHPs receive some allowances based on thermal energy produced.
- Under FIP and Option 3, a CHP's baseline is calculated by discounting the thermal energy using an assumed efficiency rate of 80% where electricity generation is assumed 100% efficiency
- Under proposed draft rule, both the thermal energy and the electricity generated are treated the same with an assumed efficiency rate of 100%

Compliance Supplement Pool

- What is Compliance Supplement Pool (CSP)?
  - Vintage year 2009 allowances over and above Wisconsin's NOx annual budget
  - Wisconsin has been allocated 4,898 CSP allowances and has the discretion on how distribute these allowances
- FIP and Option 3 distributes CSP based on:
  - Emission reductions in 2007 and 2008
  - Extreme Hardship
- Proposed draft rule: no distribution of CSP

Questions?

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